

1 What is claimed is:

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3 1. A method for removing acrolein from a process stream comprising

4 (a) providing a process stream comprising acrolein; and

5 (b) reacting said acrolein in the presence of an acid catalyst with a

6 scavenger compound containing a reactable thiol or hydroxyl moiety to

7 form an acrolein derivative in a refined process stream.

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9 2. The method of claim 1 wherein said acid catalyst is a solid acid catalyst.

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11 3. The method of claim 1 wherein said process stream further comprises said acid

12 catalyst.

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14 4. The method of claim 1 further comprising adding said acid catalyst to said

15 process stream prior to said reaction step (b).

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17 5. The method of claim 1 wherein said reaction step (b) is conducted at a pH of

18 between 3.0 and 7.0.

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20 6. The method of claim 4 wherein said acid catalyst is selected from the group

21 consisting of glycolic acid and acetic acid.

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23 7. The method of claim 1 wherein said scavenger compound contains a reactable

24 hydroxyl moiety.

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26 8. The method of claim 7 wherein said process stream further comprises water.

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28 9. The method of claim 8 wherein said process stream includes 2.0 % to 3.0% by

29 weight water at commencement of said reaction step (b).

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1 10. The method of claim 9 further comprising the step of reducing the water content
2 of said process stream to no more than 0.5% water.

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4 11. The method of claim 1 wherein said acrolein derivative is an acrolein acetal.

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6 12. The method of claim 1 wherein said scavenger compound contains a reactable
7 thiol moiety.

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9 13. The method of claim 12 wherein said scavenger compound is selected from the
10 group consisting of mercaptoacetic acid, 2-mercptoethanol, 2aminoethanethiol and
11 ethylene glycol bisthioglycolate.

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13 14. The method of claim 1 wherein said acrolein derivative is an acrolein thioacetal.

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15 15. The method of claim 1 further comprising separating said acrolein derivative from
16 said refined process stream.

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18 16. The method of claim 15 comprising distillation of said refined process stream.

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20 17. The method of claim 1 wherein said process stream further comprises
21 acrylonitrile.

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23 18. The method of claim 1 wherein said reacting step is performed in the substantial
24 absence of a cyanide compound.

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26 19. The method of claim 1 wherein said process stream further comprises acrylic
27 acid.

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29 20. A method for removing acrolein from a process stream comprising
30 (a) providing a process stream comprising acrolein; and

1 (b) reacting said acrolein with a scavenger compound containing a
2 reactable thiol or hydroxyl moiety at a pH of between 3.0 and 7.0 to form
3 an acrolein derivative in a refined process stream.

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